

Increased rate of ruptured ectopic pregnancy in COVID-19 pandemic: analysis from the North of Italy

Coronavirus disease 2019 (COVID-19) has spread at an exponential rate in several countries. Due to its high transmissibility, several preventive strategies were implemented worldwide, with many national and regional authorities reducing activities that could be a source of contagion. These included non-urgent medical care activities such as elective surgical intervention and outpatient visits. In our region, Emilia-Romagna in the North of Italy, all women are guaranteed two ultrasound scans during pregnancy; one in the first trimester (11–13 weeks) and one in the second trimester (19–21 weeks). Our regional health system continued to guarantee these scans throughout the COVID-19 lockdown period.

Whereas our understanding of the clinical consequences, prevention and management of COVID-19 is increasing^{1–4}, little is known about the collateral damage caused by the actions taken to limit the spread of the pandemic. Restrictive measures and health system disruption due to the pandemic may have deleterious effects on women's and children's health⁵. We conducted a retrospective study at the Sant'Orsola-Malpighi University Hospital in Bologna, Italy, to compare the proportion of women who underwent emergency surgical intervention for a ruptured tubal ectopic pregnancy, before and during the COVID-19 lockdown period, from 1st January 2014 until the lockdown in our region on 29th February 2020 and from 1st March to 30th April 2020, respectively.

Emergency surgical intervention was defined as one performed less than 6 h after the patient's presentation at the hospital. In our clinic, all women with tubal ectopic pregnancy were admitted to the hospital once diagnosed during both time periods. There were no reductions in the number of personnel nor the resources needed for the management of obstetric and gynecological emergencies in our region during the COVID-19 pandemic. Overall, 210 women with tubal ectopic pregnancy were admitted to our clinic in the first ($n = 201$) and second ($n = 9$) time period. The proportion of ruptured ectopic pregnancies was significantly higher during the lockdown in

comparison with the pre-lockdown period (6/9; 66.7% vs 52/201; 25.9%, Fisher's exact test $P = 0.02$).

Our data raise serious concerns regarding the potential deleterious consequences of the COVID-19 pandemic in women of reproductive age. Explaining the link between the pandemic and our findings is not straightforward. Possible explanations could be women's reluctance to seek medical advice or the reduction of early first-trimester scans, which are quite popular but elective in our region. We think that monitoring the indirect potential consequences of the COVID-19 pandemic is imperative in order to avoid unexpected deleterious health complications in the population.

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